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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/534,434 | 05/10/2005 | Masashiro Yanagisawa | 14321.73 | 4495 |

22913 7590 10/30/2006

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EXAMINER

STAHL, MICHAEL J

| | |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2874

DATE MAILED: 10/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/534,434

Applicant(s)

YANAGISAWA ET AL.

Examiner

Mike Stahl

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 5 and 7 is/are rejected.
- 7) ☒ Claim(s) 2-4, 6 and 8-15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 May 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/14/05
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- ☐ Notice of Informal Patent Application
- ☐ Other: ____

Drawings

Figures 14 and 15 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The specification is objected to because of the following informalities: In each of paragraphs [0035] and [0036] as they appear in the May 10, 2005 preliminary amendment, "multiplayer" should be changed to "multilayer". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 8-190026. This reference (including a translation) was cited in the information disclosure statement filed November 14, 2005.

Claim 1: '026 discloses a wavelength multi/demultiplexer comprising a dielectric multilayer filter 5 at an intersection portion where two optical waveguides 2, 3 intersect each other and separating incident light to the dielectric multilayer filter to transmitted light and reflected light, wherein the distance X from the multilayer surface on the light-incident side of the dielectric multilayer to the central intersection point of the two intersecting optical waveguides satisfies $0 \leq X \leq d/2$, d being the thickness of the dielectric multilayer (fig. 4). The thickness d is 9 μm , so that d/2 is 4.5 μm , and the distance X ("distance between the intersection point of the center lines of the two input/output waveguides and the surface of the filter") is between 0 and 8 μm , but is typically 4 μm ([0027]).

Claim 5: The distance X satisfies $d/10 \leq X \leq 2d/5$. It is noted that d/10 is 0.9 μm and 2d/5 is 3.6 μm , and the disclosed range for X includes values between these limits.

Claim 7: The intersection angle between the two waveguides may be 15 degrees ([0029]), which is within the claimed range.

Allowable Subject Matter

Claims 2-4 and 6-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 2 requires that the width of the two intersecting optical waveguides is enlarged to 18 μm or more toward the intersection. The maximum width recommended by the applied '026 reference is 15 μm . It would not have been obvious to a skilled person to increase the width to at least 18 μm since the reference teaches that widths that are too high lead to higher mode waveguide operation ([0031]). Claims 3 and 8-15 depend from claim 2.

Claim 4 requires that the refractive index difference of the optical waveguides is set from 0.3 % to 0.45 %. In contrast, the '026 reference specifically teaches a refractive index difference of 0.75 % ([0020]) and contains no motivation or suggestion to use a lower index difference.

Claim 6 requires that the thickness of the dielectric multilayer is 20 μm or more. The only multilayer thickness taught by the '026 reference is 9 μm ([0023]). There is no motivation or suggestion in the reference to use a dielectric multilayer which is at least 20 μm thick. It is noted that using such a thick dielectric multilayer would require modification of the groove structure which is disclosed to be at most 20 μm thick. Furthermore, it is not clear that a skilled person would have considered a thicker dielectric multilayer to be necessary for the reference device since it is intended to separate comparatively widely spaced wavelengths (1.3 and 1.55 μm).

The '026 reference is considered to be the closest prior art of record. Other generally relevant references are cited on the attached PTO-892 form.

Conclusion


Inquiries about this letter should be directed to Mike Stahl at 571-272-2360. Inquiries of a general or clerical nature (e.g., a request for a missing form or paper, etc.) should be directed to

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the technical support staff supervisor at 571-272-1626. Official correspondence which is eligible for submission by facsimile and which pertains to this application may be faxed to 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions about the Private PAIR system should be directed to the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Stahl *MSS*
Patent Examiner
Art Unit 2874

October 25, 2006



Rodney Bovernick
Supervisory Patent Examiner
Technology Center 2800